



Department of Health and Social Services  
William J Streur, Commissioner

Division of Public Health  
Ward B Hurlburt, MD, MPH, CMO/Director

Editors:  
Joe McLaughlin, MD, MPH  
Louisa Castrodale, DVM, MPH

3601 C Street, Suite 540  
Anchorage, AK 99503 <http://www.epi.Alaska.gov>

Local (907) 269-8000  
24 Hour Emergency 1-800-478-0084

Bulletin No. 9 Date: June 14, 2012

## Non-medically Indicated Early Term Deliveries in Alaska, 2005–2010

### Background

Non-medically indicated (NMI)-early term (37 to 38 completed weeks gestation) labor inductions and cesarean sections (c-sections) are increasing in the United States, creating concern about trends in current obstetric practice.<sup>1</sup> Alaska has seen an increase in early term births from a low of 15.4% of all singleton births in 1980 to a high of 27.0% in 2005. In 2010, the proportion of early term singleton births in Alaska was 24.7%. An unknown portion of these were elective deliveries, i.e., an induction or c-section was done without a documented medical or obstetrical indication.

NMI-early term deliveries are associated with neonatal morbidities with no medical benefit to the mother or infant.<sup>2</sup> Important organ growth, including the brain, lungs, and liver, occurs during the last weeks of pregnancy.<sup>3</sup> Morbidities associated with NMI-early term births include respiratory complications, sepsis, hypoglycemia, transient tachypnea of the newborn (TTN), and respiratory distress syndrome (RDS).<sup>4-7</sup> The risks are highest for elective c-sections at 37 weeks gestation.<sup>4-7</sup> These adverse outcomes lead to a higher likelihood of admission to the neonatal intensive care unit,<sup>4-7</sup> resulting in significant increases in hospitalization costs.

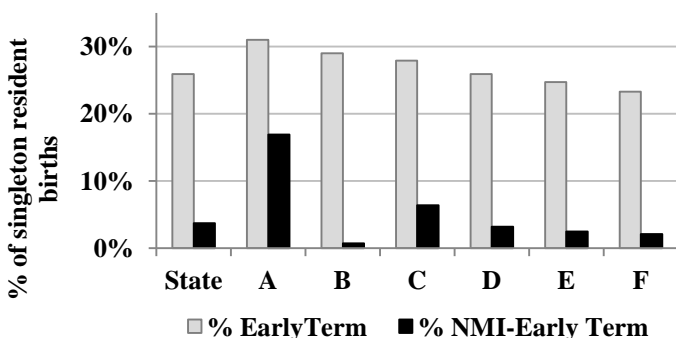
### Methods

We analyzed birth certificate data for 65,998 singleton Alaska-resident births during 2005–2010 to estimate the proportion of NMI-early term deliveries in Alaska. An NMI-early term birth was defined as either an induced vaginal birth or a c-section birth where no medical conditions affecting the pregnancy and no complications of labor or delivery were documented on the birth certificate. We refer to births at full term ( $\geq 39$  weeks gestation) with no medical or obstetrical indications for delivery as “NMO-full term” births. In order to evaluate the potential cost savings of reducing NMI-early term elective deliveries, NMI-early term births and NMO-full term births that occurred in 2010 were matched to Medicaid records and analyzed for claims billed up to 12 months after birth.

### Results

During 2005–2010, 25.9% of births were early term and 3.7% were NMI-early term. The proportion of NMI-early term births ranged from 0.7% to 16.9% in the six in-state birthing hospitals (Figure); 65% of Alaska’s resident births occurred in these facilities. Forty-four percent of 2010 NMI-early term and NMO-full term births matched to Medicaid records (108 and 1,334 matches, respectively). The average claim amounts were \$22,711 for NMI-early term infants compared to \$7,122 for NMO-full term infants. Among the births that matched to Medicaid, a larger proportion of NMI-early term births were repeat c-sections, compared to the NMO-full term births (39.8% vs. 6.5%, respectively).

**Figure. Proportion of Early Term and NMI-Early Term Births by Birthing Facility (A-F) — Alaska, 2005–2010**



### Discussion

This evaluation demonstrates that 2010 Medicaid-matched NMI-early term births were associated with higher medical costs than NMO-full term births. This is likely due, in part, to the fact that a larger proportion of NMI-early term births were repeat c-sections, compared to the NMO-full term births. Reasons for this include the following: failed early-term elective inductions result in c-sections and many elective repeat c-sections are scheduled prior to 39 weeks.

These findings demonstrate an opportunity to improve hospital standards regarding NMI-early term deliveries. One option is for hospitals to prohibit NMI-early term elective deliveries. Hospital B, which showed the lowest proportion of NMI-early term births (Figure), has implemented this policy. Eliminating NMI-early term elective deliveries could reduce neonatal (and potentially post-neonatal) complications. Such a change would likely reduce neonatal and post-neonatal morbidities and reduce medical costs.

This report is subject to at least one limitation: since we used the absence of birth certificate documentation of “medical indication” as a proxy for an “elective” delivery, we might have overestimated the number of NMI births as some birth certificates might have lacked appropriate documentation.

### Recommendations

1. Unless medically indicated, repeat c-sections should not be scheduled prior to 39 weeks gestation.
2. Hospitals should work to implement policies to avoid NMI-early term elective deliveries. The Prematurity Prevention Resource Center released a Toolkit that assists facilities in implementing such policies (see: [www.prematurityprevention.org/portal/server.pt](http://www.prematurityprevention.org/portal/server.pt)).
3. Birthing facilities should adopt the national quality measures recommended by the Joint Commission.<sup>8</sup>
4. Health care providers should become familiar with the *Healthy Babies are Worth the Wait* campaign (see: [www.marchofdimes.com/professionals/medicalresources\\_hbww.html](http://www.marchofdimes.com/professionals/medicalresources_hbww.html)).
5. Prenatal care providers should help educate expectant mothers about the consequences of NMI delivery and the value of staying pregnant for at least 39 weeks (see: [www.marchofdimes.com/pregnancy/getready\\_atleast39weeks.html](http://www.marchofdimes.com/pregnancy/getready_atleast39weeks.html)).

### References

1. ACOG. American College of Obstetricians and Gynecologists: Clinical management guidelines for obstetricians-gynecologists: Induction of labor. ACOG Practice Bulletin. Number 107, August 2009.
2. Tita AT, Landon MB, Spong CY, et al. Timing of elective cesarean delivery at term and neonatal outcomes. *N Engl J Med* 2009;360(2):111-20.
3. Main E, Oshiro B, Chagolla B, et al. Elimination of Non-medically Indicated (Elective) Deliveries Before 39 Weeks Gestational Age. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract #08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; First edition published by March of Dimes, July 2010.
4. Clark SL, et al. Neonatal and maternal outcomes associated with elective term delivery. *Am J Obst Gynecol* 2009;200(2):156 e1-4.
5. Morrison J, Rennie J, Milton P. Neonatal respiratory morbidity and mode of delivery at term: influence of timing of elective caesarean section. *Br J Obstet Gynaecol* 1995;102(2):101-6.
6. Madar J, Richmond S, Hey E. Surfactant-deficiency respiratory distress after elective delivery at ‘term’. *Act Paediatr* 1999;88(11):1244-8.
7. Hook B, et al. Neonatal morbidity after elective repeat cesarean section and trial of labor. *Pediatrics* 1997;100(3):348-53.
8. Elective Delivery (PC-01). Specifications Manual for Joint Commission National Quality Core Measures (2010A1). Available at: <http://manual.jointcommission.org/releases/archive/TJC2010A1/MIF0166.html>